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REGIONAL GEOGRAPHY

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As to method of treatment and presentation, geography has two distinct and contrasted phases, general geography and regional geography. General geography discusses features and processes, seasons, mountains, rivers, ocean currents, coal, iron, deserts, forests, corn, cotton, agriculture, manufacture, trade, education, politics, and so on through the whole geographic category, as each occurs over the whole world. Regional geography discusses the same features as they occur in a definite and limited region, as the British Isles, the United States, New England, the glacial drift plain. In most textbooks of physical geography the treatment is general; in textbooks of human geography it is prevailingly regional. There is at present in the newer books a decided tendency toward a regional treatment, in which all the phenomena of a given territory or country, *physical, economic and social,* are presented in logical and pedagogical relation. The best example of regional geography extant in English is Mackinder's *Britain and the British Seas.* The Germans have long emphasized the distinction between "earthlore" and "landlore," and in that country and in France many monographs have appeared as periodical articles or books, on the geography of special regions, large or small. Among these Philippson's *Das Mittelmeergebiet* and Fevre and Hauser's *Regions et Pays de France* are interesting examples.

Regional geography is undoubtedly "the bright, consummate flower" of geographic science, from which the best fruit of scientific method and discipline is to be obtained. Prof. Herbertson has said that geography is fast becoming a scientific study of environments. An environment has no meaning apart from something environed, first of all man and his works, and secondarily all living creatures, plants and animals as well as man. The "new geography" may be defined as the study of the relations of earth features to one another, culminating in the relations of human societies to their natural environments. The pebble on the beach has an immediate relation to its environment, where it is rolled over and over by each successive wave; a remoter relation to the rock ledge from which it was broken, and a still more remote relation to the forces and processes by which

its parent ledge was formed. A volcano is the creature of its environment, the fault crack in the earth crust which gives it vent, the deep seated materials and forces which furnish the lava and produce the eruption. Far more complex than this, but none the less real, are the relations of a plant or animal to its habitat, to soil, climate, food supply, enemies and friends. Civilized men have achieved a world wide environment and are influenced by conditions and events as remote in space as is possible on earth.

As regional geography develops, the question as to what kind of a region is most significant and fruitful for the study and exposition of geographical relationship becomes pressing. Treatment by political divisions, countries, states, counties, towns, has been the rule hitherto, and has some advantages. A political division has perfectly definite boundaries and an entity known, at least by name, to all intelligent persons. Statistics of population, products, industries and institutions are always collected and arranged by political divisions. But political divisions are almost always artificial and disregard natural boundaries. There can be no more unnatural boundary than that between the United States and Canada west of the lake of the Woods. The opposite shores of the Great Lakes differ in no important respect and the essential conditions are the same on both sides of the international boundary. When geography is taught by states, and Indiana is treated as a geographical unit or environment apart from Ohio and Illinois, geography becomes absurd. The case is even worse as a violation of the unities for Nebraska, one half of which belongs naturally with Iowa and one half with Colorado. Such difficulties have been realized and partly overcome by grouping similar units, as the New England or the gulf coast states, or by dividing Oregon into coast ranges, intermont valley, Cascades and plateau.

There is no thoroughfare for scientific regional geography by the way of political units and the necessity for basing it upon natural units is imperative. The ideal natural division is an area in which all the natural conditions are uniform. A composite map, made by printing upon one sheet maps of all the natural conditions, relief, temperature, rainfall, vegetation and the rest, would at once accomplish the purpose, but the result would be too complex and the divisions too numerous for practical use. The problem has been attacked by many geographers, among whom Hettner in Germany, de Martonne in France, and Herbertson in England are conspicuous. It has been found impracticable to give equal weight to all natural conditions, and those which are most potent in determining the character of an environment for human occupation have been selected to control the subdivision.

Natural factors may be classified as follows:

(1.) *Pedographic**. The structure and relief of the earth crust, in-

*Greek, *pedon,* the ground.

cluding soils and useful minerals, and affecting climate, drainage, water power, accessibility, arability and industries.

(2.) *Hydrographic.* Streams, lakes, etc., closely related to (1) and (3).

(3.) *Climatic.* Temperature, rainfall, winds, etc.

(4.) *Phytographic.* Vegetative covering of the ground, as an expression and resultant of (1), (2) and (3).

(5.) *Zoographic.* Animal life, a department as yet little developed geographically. Insects and lower forms are generally more important than birds and mammals.

Contrary to what one might at first imagine, structure and relief are found to be of secondary importance, and climate and vegetation fundamental. Minor discrepancies must be overlooked and the land areas divided into natural provinces in which these controlling factors are broadly uniform. In 1905 Herbertson published the first scheme and map of "Major Natural Regions" in English*. He divides the land area into fifty regions, grouped under fifteen types and six classes, a scheme which has been the basis and model for the work of several writers, who have modified the original according to their own ideas and purposes. On such a plan a recent textbook divides North America into twelve natural provinces, named Greenland, Arctic, Alaskan, Canadian, Oregon, Californian, Arizonan, Interior, Mississippian, Mexican, Floridan and Carribean, each of which is treated as a geographic unit regardless of political boundaries, and taken as a type of similar provinces in other parts of the world. All the continents and islands are included in forty-four natural provinces, under fourteen types and five classes.

Such a plan is revolutionary, but also evolutionary in the direction of better geography. For each province, the conditions of relief, soil, climate and vegetation can be broadly stated. The influence of these upon human life and the reaction of men to their natural environment, as expressed in economic, social and political institutions, can be made clear without prolixity or repetition. The habit of looking for and seeing the relations between the geographic factors in any region is thus easily acquired. The many ways in which men get a living, and the different kinds of a living which they get by adaptation to different environments, are made plain. Geography becomes no longer an assemblage of dry and detached facts but an organized science demonstrating "the magnificent accord of the earth and all which germinates and develops upon its surface."

*Geographical Journal, Vol. 25, p. 300.

HAMBURG HARBOR

By GEORGE L. COLLIE,
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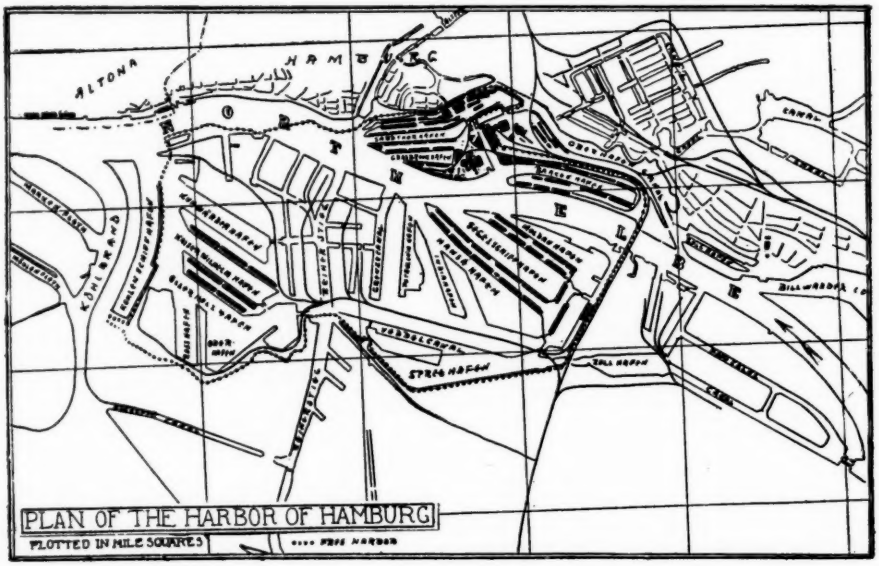
Introductory:—In a series of five articles the writer intends in a simple way to describe some of the characteristics of certain great harbors of the world, which he has visited recently. The first of these thus to be considered is that of Hamburg, Germany, situated near the mouth of the Elbe river.

The Elbe River.—The Elbe rises in Bohemia and flows in a northerly direction through the heart of Germany, but turns to a westerly course as it approaches the North sea. This position of the river makes it the chief outlet of raw materials for Austria and Germany. A few miles above Hamburg the river divides into two branches, which are connected with each other by several cross channels; Hamburg is situated upon the northern and larger of the two branches. A few miles below the city the branches reunite and from that junction the river is wider and more imposing.



Approach to the Harbor.—Just before entering the mouth of the Elbe from the sea a number of low barriers, islands and tidal flats are seen, the dune covered islands are favorite summer resorts for the German people. Several light ships are passed in the offing; it is not practicable to build light houses on the shifting sand bars. Soon the low mainland appears with Cuxhaven on the right, where are located the great docks and buildings of the Hamburg-American Steamship company. From its mouth up to

Hamburg the river narrows quite rapidly and the steamers are obliged to follow a dredged channel, whose winding course is marked by innumerable buoys of varied shapes and colors. The river presents a very animated appearance, numerous tugs are towing great sailing vessels to and from the sea, while ocean steamers, fishing vessels, steam lighters, barges, canal boats pass in endless succession.

The land on either side of the river is low, consisting of moorland, much of it marshy, cultivated fields and pastures; in the latter thousands of Holstein cattle are feeding. Men, women and children are at work in the fields, carefully cutting and gathering the crops by hand. The whole region below Hamburg resembles Holland in its aspect, with its numerous canals, dikes and windmills. Quaint, old, thatched cottages appear at intervals, but as Hamburg is approached they are displaced by smart, variegated brick and stucco houses, much less picturesque but doubtless more habitable. Numerous hamlets, villages and towns also are scattered over the flat plain.

Hamburg Harbor.—Hamburg is situated on a series of hills which project into the alluvial deposits laid down by the river. The harbor corresponds in general type with those of Bremen, Antwerp and other north European ports; it might be termed a North sea type, though not confined to that region solely. It is a river harbor of the estuarine character, the lower reaches of the river having been drowned in recent geologic time.

The harbor consists of a series of long, narrow water basins separated one from the other by granite quays, on which are located large warehouses and various loading and unloading appliances. The basins are joined by a network of canals, which allow free passage for barges and other small boats without the necessity of going out into the crowded river. The channels also connect with the canal systems of the country and give free access to canal and river boats from all parts of the empire. On most of the quays switch lines are found which connect with the trunk lines of Germany. There is thus afforded every opportunity for the easy and rapid transportation of freight both outgoing and incoming. The water basins are termed hafens by the Germans; there are a number of them in the harbor; all are excavated from the soft alluvium, and a number more are in process of building at the present time. Most of the hafens are commodious, necessarily so, as Hamburg is a great transit port and the harbor is crowded with shipping. Thus the Hansa hafen is over a mile long and averages about 2000 feet in width, the Segelschiffs hafen covers 60 acres. Most of the hafens open down stream, a very important matter as it enables a heavily loaded and unwieldy vessel to depart with the current of the river instead of across it; in the latter circumstance it is very difficult to handle a large steamer. This arrangement of the hafens seems like a small matter, but it is important and it is one of several contrivances all intended to make

the harbor of the utmost value to shipping and to encourage commerce to seek Hamburg rather than some other port which pays less attention to details.

The hafens and wharves lie on both sides of the Elbe, but chiefly on the south bank opposite Hamburg. The harbor proper is about six miles long; the total length of quays and wharves is in excess of fifty miles. There is room in the harbor at one time for more than 450 sea going vessels, 1450 river steamers, 5000 barges and coasting vessels. Each year 85,000 vessels of all description enter the harbor, an average of 230 daily.

It is essential not only that a harbor should be commodious, but it is equally important that there should be depth of water and other facilities for steamers of the largest tonnage. Hamburg is keenly alive to the necessity of dredging and keeping open channels and basins that shall be adequate for the greatest of ocean steamers. Otherwise this class of trade will be transferred to Cuxhaven at the mouth of the Elbe or to other ports and Hamburg will suffer serious loss of trade. In connection with the imperial government the city of Hamburg is engaged in increasing the capacity of its harbor for large steamers; the harbor has already cost one hundred million dollars and present plans call for an expenditure of fifty millions more.

About one hundred acres in extent of the quays are roofed over and this furnishes abundant storage room in addition to the numerous warehouses which line the many canels in the city proper. The rates of storage in these bonded warehouses is lower than it is in the United States, so that on some classes of freight, that are to be stored for a long period, it pays to send it over from this country, pay storage charges on it and reship it again rather than to pay warehouse charges upon it here.

On the various docks there are over 800 cranes, steam, hydraulic and electric. Some of the cranes are stationary, some travel on rails, while others are mounted on large barges and are used to load and unload ships in mid-stream. The larger cranes have a lifting capacity of 150 tons and upward.

Each steamship company operating at Hamburg has its own quay assigned to it by the harbor-master and it must use its own berth unless there are special reasons to the contrary. Thus the quays in the new Kuhwärder hafen are given over to the boats of the Hamburg-American company, while India hafen is assigned to the steamers of the Cosmos line and the German-Australian line. Ships bringing in certain special commodities such as coal or petroleum go to the Kohlenschiff hafen and the Petroleum hafen respectively. The hafens frequently are so crowded that it is necessary for newly entered vessels to lie in midstream, where they tie to the phalbündeln or groups of piles, which are chained together and afford

steady anchorage. Crowded as the hafens are, the original capacity has been increased tenfold by dredging out the basins and by utilizing and widening the streams and canals.

There is probably no harbor in the world so well equipped and maintained, no one harbor that has so many conveniences. Hamburg has grown to be a city of over a million inhabitants; its phenomenal growth and prosperity is not due to natural facilities or to advantages of position but to the enterprise and determination of the city authorities and the imperial government. These agencies have created a great harbor out of untoward conditions and have made it today the world's best river port.

UNDERLYING ROCK VERSUS GLACIATION IN THE BARABOO DISTRICT, WISCONSIN

By BERTHA HENDERSON,
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The notion seems to prevail among a large number of people that the invasion of the ancient ice sheet is responsible for all of the agricultural prosperity of Wisconsin; that all that is good, rich or beneficial in the state is found in the glaciated area and that the poor, benighted beings who live in the driftless area are objects of pity and charity, regardless of any other conditions.

During the summer of 1912 I spent four weeks in the Devil's Lake region with a class from the University of Chicago, studying field geology under the direction of Dr. A. C. Trowbridge. During the last week I spent most of the time gathering statistics concerning the crop value and market price of the different kinds of land. It is the purpose of this article to show that, whether glaciated or unglaciated, the underlying rock of the region is a potent factor in the control of land values. The territory studied comprises the eastern portion of Sauk County and a narrow, irregular strip of the western part of Columbia County. It lies between 43° 15' 43° 45' north latitude and 89° 30' and 90° west longitude. The surface is an undulating sandstone plain between 800 and 900 feet above sea level, broken near the central part by two parallel east and west ridges which rise 400 to 600 feet above the plain and are known as the North and South Ranges. Potdam sandstone in horizontal layers underlies the plain. The South Range is a "hog-back" of quartzite of the Huroninan age, about 25 miles long and from 2 to 4 miles wide. The only break in this ridge is the gap now occupied by Devil's Lake. The beds have been leveled on the top until both east and west of the lake there are flat areas several square miles in extent, 500 feet above the sandstone plain, and 1400 feet above sea level.

The North Range is by no means so conspicuous a feature in the landscape It is not continuous and is but 1200 feet high. Between the two ridges lies the Baraboo River Valley, from 2 to 4 miles wide, 900 feet above the sea and much of it is as level as a threshing floor.

During the invasion of the Wisconsin ice sheet the Green Bay Lobe covered the eastern half of the section under discussion. No conclusive evidence of earlier drift has yet been found in the region. The terminal moraine extends almost south of Kilbourn to Prairie du Sac, cutting the section into nearly equal east and west portions. From this description it follows that the eastern half of the region is glaciated, the western half non-glaciated; that the plain, whether drift-covered or driftless is underlaid by soft, friable Potsdam sandstone and that the ranges are underlaid by hard resistant Baraboo quartzite. In the unglaciated area the soil is the residuum of the decayed bed rock; that in the glaciated area is glacial drift, the dominant portion of which is gathered from the local bed rock. These glacial deposits may be classified as ground moraine, terminal moraine and outwash plains. The lacustrine deposits of extinct glacial and post-glacial lakes are neither glacial nor residual, yet are so large in area that they must be taken into account.

There are three important outwash plains west of the terminal moraine; viz., Sauk Prairie, south of South Range, Skillet Creek, between South and North Ranges, and Webster's Prairie, north of North Range. The valley of the Baraboo, Stienke's Flat and Northeast Flat are old lake basins. The last two lie in the re-entrant in the terminal moraine east of Devil's Lake. Of the outwash plains Skillet Greek and Sauk Prairie are made from material washed from drift gathered mostly from the quartzite; from the residuum of beds now weathered away, and from limestone; Webster's Prairie from drift gathered from sandstone.

The east half of the quartzite range is glaciated; west half, non-glaciated. The driftless sandstone plain is, in terms of erosion, in late maturity, having broad stream valleys and well worn divides.

The statistics shown in the following table were gathered from the farmers in personal interviews and by letter. I also had access to the crop reports in the county clerk's office in Baraboo and received valuable help as to land values from a banker in Baraboo.

This table shows that Sauk Prairie and Skillet Creek outwash plains are the most productive regions, and that the bottom lands of the driftless area come next. The outwash plain from the sandydrift, Webster's Prairie, ranks much lower. The quartzite areas are practically equal in value, whether glaciated or non-glaciated. The poor land in the terminal and ground moraines is no poorer and no better than the poor land of the driftless area. The good land of the one is about on a par with the good land of the other, with the doubt in favor of the driftless.

Average yield per acre of	Quartzite Ridges.		Potsdam Sandstone Plain.			Outwash Plains.		Lacustrine Deposits
			Glaciated	Unglaciated.				
	Glaciated	Unglaciated	Ground and Terminal Moraines	Upland.	River Valleys.	From drift containing Quartzite and Limestone and Residuum from Freedom Formation and Seely Slate.	From drift from Sandstone Region	
Oats	45 bu.	50 bu.	60 bu.	30 bu.	50-70 bu.	74-90 bu.	30 bu.	50-60 bu.
Potatoes	150 bu.	200 bu.	225 bu.	100 bu.	200 bu.	250 bu	70 bu.	200 bu.
Corn	50 bu.	40 bu.	50 bu.	25 bu.	65 bu.	75 bu.	25 bu.	60 bu.
Wheat				10 bu.	40 bu.	20 bu.	25 bu.	23 bu.
Clover	2½ tons	2 tons	1-½ tons		2 tons	3-5 tons		2 tons
Market value of land per acre	$60	$60	$10-$150	$40-$70	$100-$150	$150-$250	$10-$75	$100-$125

Interpreting this investigation in terms of prosperity, we come to the following conclusions. A yield of 90 bushels of oats, 75 bushels of corn, 250-300 bushels of potatoes, or 5 tons of clover from an acre means to the farmer on the outwash plain a comfortable home with modern improvements, well cared-for stock, the benefits of travel and higher education for his children and freedom from money worries. The farmer who, on the hilly land in moraine or sandy region or on steep slopes of the bluffs, with probably more work, harvests but 25 bushels of oats, 70 bushels of potatoes, 25 bushels of corn or 1 ton of clover from an acre of land, must as a rule live in a small, uncomfortable house, see his stock and machinery deteriorate in value because of inadequate shelter, find it difficult to buy books and magazines and may be compelled to take his children from school at an early age.

In think I have shown that a sandstone bed rock furnishes a poor soil, whether in the form of glacial drift or residuum, but that it may prove valuable as a subsoil when covered with alluvial deposits, and that soil derived from limestone or the rocks of the Huronion age is rich and productive whether mixed up in glacial drift or left as a residue; and that while the glacier has made some difference the bed rock has been a stronger control.

LABORATORY EQUIPMENT FOR HIGH SCHOOL WORK IN PHYSICAL GEOGRAPHY

By E. F. BEAN,
University of Wisconsin, Madison

All teachers of physical geography in the high school realize the importance of having at least a small laboratory equipment. Yet, many high schools have either antiquated material or none at all. In some cases this condition may result from the fact that teachers have not investigated the question of cost of material. A small outlay of cash will purchase a surprisingly large amount of material. The following list of sources of material is by no means complete, but it is hoped such a list will prove helpful.

MAPS.

Topographical maps, published by the United States Geological Survey.

The sheets of standard size are sold at the rate of five cents each. In lots of one hundred or more a rate of three cents each is made. Prepayment is required and may be made by money order, payable to the order of the Director of the United States Geological Survey, or in cash. All correspondence should be addressed to The Director, United States Geological Survey, Washington, D. C. The following sets are suggested:

Set of harbor maps, for use not only in physical geography, but in commercial geography as well.

1.	New York City and vicinity 25c	8.	Milwaukee 03
2.	Philadelphia 03	9.	Chicago 03
3.	Pittsburg-Carnegie 06	10.	Duluth 03
4.	Baltimore 03	11.	New Orleans 03
5.	Richmond 03	12.	Seattle 03
6.	Boston and Boston Bay 06	13.	Portland 03
7.	Buffalo 03	14.	Tacoma 03
		15.	San Francisco 03
			Total 73

Set for illustrative work in class room. Form 9-293Z, "Topographic Maps of the United States, showing Physiographic Types," U. S. G. S. gives in outline some of the features shown on these maps. Copies of this folder will be sent free upon application to the Director of the United States Geological Survey, Washington, D. C.

1. Barnegat, N. J.
2. Bisuka, Idaho
3. Boothbay, Me.
4. Bright Angel, Ariz.
5. Bristol, Va., Tenn.
6. Charleston, W. Va.
7. Cloud Peak, Wyo.
8. Clyde, N. Y.
9. Crater Lake Special, Ore.
10. Cucamonga, Cal.
11. Donaldsonville, La.
12. East Delta, La.
13. Hamilton, Mont.-Idaho.
14. Harpers Ferry, Md.-Va.-W. Va.
15. Harrisburg, Pa.
16. Hayden Peak, Utah.
17. Henry Mountains, Utah.
18. Lakin, Kansas.
19. Marshall, Mo.
20. Minneapolis, Minn.
21. Monadnock, N. H.
22. Mount Marcy, N. Y.
23. Niagara Falls, N. Y.
24. Port Washington, Wis.
25. Saint Paul, Minn.
26. Salt Lake, Utah.
27. Sandy Hook, N. J.
28. Shasta Special, Cal.
29. Sun Prairie, Wis.
30. Yosemite, Cal.

30 copies at 3c each, 90 cents.

Ten sets for laboratory study, 15 copies of each sheet.

1. Fargo, N. D.-Minn.
2. Niagara, N. Y.
3. Chief Mountain, Mont.
4. Bright Angel, Ariz.
5. Atlantic City, N. J.
6. Cortland, N. Y.
7. Seattle, Wash.
8. Harrisburg, Penn.
9. Map of large city in our state.
10. Map of region in which school is located or of region near.

150 sheets at 3 cents each, $4.50.

MAPS OF THE GREAT LAKES.

For the Great Lakes region general charts of each of the lakes, detailed maps of the shore lines, as well as detailed harbor maps of nearly all the larger cities, may be obtained from the United States Lake Survey Office, Detroit, Mich.

The Coast and Goedetic Survey publishes charts of the coasts of the United States. These charts may be obtained from the Superintendent of the United States Coast and Geodetic Survey, Washington, D. C., at the cost of publication. A catalog of these charts may be obtained free.

The Secretary, Mississippi River Commission, St. Louis, Mo., can furnish at cost, splendid detailed maps of the Mississippi below Cairo.

ATLASES

Rand, McNally & Co.—Library Atlas of the World	$25.00
C. E. Stechert & Co.—Stanford Atlas of Modern Geography	7.75
Stanford's Handy Atlas	3.15

A. G. Nystrom & Co.—Johnston's Royal Atlas of Geography 25.00
Johnston's Class Room Atlas 1.50
Longmans, Green & Co., Fourth Ave. and 30th St., New York—
Longmans New Atlas 1.20

WALL MAPS

Net prices of maps mounted on cloth with moulding at top and bottom

FIRM	Edition	Europe	Asia	Africa	North America	South America	Australia
A. J. Nystrom & Co., 86 Lake St., Chicago, Ill.	Johnston	2.75	2.75	2.75	2.75	2.75	2.75
Rand, McNally & Co. Chicago, Ill.	Rand, McNally & Co.	4.00	4.00	4.00	4.00	4.00	4.00
G. E. Stechert & Co., 151 W. 25th St., New York	Kieperts	4.80	5.85	4.40	4.10	3.80	5.85

MODELS

Ginn & Co., 2301 Prairie Ave., Chicago. The Harvard Geographical Models, designed by Professor W. M. Davis of Harvard.

"The three models all represent the same region. The first illustrates the effect of erosion in the carving of valleys in a mountain region. The second exhibits the effect of an elevation of the land, whereby the land waste that was washed out from the mountains and spread upon the sea floor is revealed in a coastal plain. The third shows the effect of a depression of the land whereby the lower valleys are submerged and converted into bays." Net price, $16.00.

Edwin E. Howell, Washington, D. C., supplies models of the continents.

MODELS OF WISCONSIN

Models of the State of Wisconsin may be obtained from the State Geological Survey, Madison, Wisconsin.
Model showing topography only $31.00
Model showing topography and geology 46.00

GLOBES

Rand, McNally & Co.—12-inch globe No. 101 ..... $4.00
6-inch globe for laboratory use ..... .25
A. J. Nystrom & Co.—12-inch globes No. 20 ..... 4.50
6-inch globe ..... .25

LANTERNS AND REFLECTOSCOPES

The Keystone View Co., Meadville, Penna.
Bausch & Lomb Optical Co., Rochester, New York.
Moore, Bond & Co., 104 Franklin St., Chicago, Ill.
A. T. Thompson & Co., 15 Tremont Place, Boston.
Central Scientific Co., 14 Michigan St., Chicago, Ill.
T. H. McAllister Co., 49 Nassau St., New York.
The Mackintosh Stereopticon Co., Chicago, Ill.

The following prices from the Bausch & Lomb Optical Co. catalogue will give some idea of the cost of lantern equipment. All these prices are subject to a 10 per cent. discount to schools:

1. For small school, No. 5006 Model C, Balopticon, 10-inch focus, 2 7-16 inch diameter projection lens, $30.00.

An opaque attachment can be secured for this lantern.

2. For larger schools, Universal Balopticon, No. 4185, $150.00.
3. For large schools, Convertible Balopticon, No. 4155, $215.00.

For any of the above machines, a rheostat is needed. No. 4454, 15 to 25 amperes, 110 volts, $18.00.

LANTERN SLIDES

Keystone View Co., Meadville, Pa.
T. H. McAllister & Co., 49 Massau St., New York.
Moore, Bond & Co., 104 Franklin St., Chicago, Ill.
Central Scientific Co., 14 Michigan St., Chicago, Ill.
W. C. Ives, Mystic, Conn.
Wm. Rau, Philadelphia, Penna.
Geography Supply Bureau, Ithaca, N. Y.

The Geography Supply Bureau has a descriptive catalogue of 1300 slides, selected from Professor Tarr's collection of 8000 illustrations of Physical Geography Phenomena. They offer sets which have been selected with a view to making them cover the subject as well as possible within the given number. The prices are as follows:

1. Set of 100 ..... $37.00
2. Set of 200 ..... 72.00
3. Set of 300 ..... 105.00
4. Set of 500 ..... 170.00

Rock and Mineral Collections,

Geography Supply Bureau, Ithaca, N. Y.
Ward's Natural Science Establishment, Rochester, New York.
Howell's Microcosm, Washington, D. C.

DUPLICATORS

Tip Top Duplicator, $5.00 net, delivered.
Felix Daus Duplicator Co., 11 John St., N. Y.

LABORATORY WORK IN GEOGRAPHY

It may be of interest to learn what some of the authors of laboratory manuals give as the reasons for introducing laboratory work in geography.

Gilbert H. Traton (1905) says:

"The reasons for the introduction of laboratory methods in this subject are the same as those which demand its use in the other sciences, namely, the training which the pupil receives in the laboratory, and the additional light thrown upon the subjects discussed in the class room. * * * This first science should be so taught as to inculcate scientific methods of study."

James F. Chamberlain (1906) says:

"The purpose of these exercises is to develop *power* and to enable pupils to acquire certain important facts and principles at first hand."

Everly-Blount-Walton (1908) say:

"A valuable service of the geographical laboratory is to give concreteness and location to the general principles taught in the text book."

Frank W. Darling (1905) says:

"Mere copying of maps, charts, diagrams, etc., is of little or no value. Such work must have in it something to stimulate the self activity of the pupil so that his work will give him a better realization of the principles involved."

He calls certain kinds of laboratory exercises, "pyrotechnics and monstrosities."

W. M. Davis (1908) says in the preface to his manual that its purpose is to provide *"a series of disciplinary exercises."* He further says: "The student's attention must be directed to and detained upon each feature of a complicated fact, each step of a large problem, in order that the facts and problems may reach his understanding and remain in his memory." He points out also that such laboratory exercises as he has arranged produce a more vivid impression upon the pupil than the text book statements can possibly do; that they produce "strength of conviction" and "clearness and fullness of conception."

It is quite clear that at least two motives have actuated leaders in geography-teaching and makers of laboratory manuals: (1) The feeling that because physical geography is a science, and sciences ought to be taught with laboratory exercises, therefore physical geography ought to be so taught. (2) The belief that the facts of the text are illustrated and impressed through laboratory work, and that such work is "disciplinary."

Before laboratory studies in physical geography had taken definite shape, those in physics, chemistry and biology had been worked out. It was entirely natural then, that the existing types of laboratory exercises in

those sciences should strongly influence men in the preparation of supposedly suitable exercises for physical geography. In physics, it was thought that the best disciplinary results are obtained by quantitative experiments, and our high school manuals are based upon that assumption. In some of the earlier laboratory manuals in physical geography, it was evident that their authors shared this prevailing feeling—that good loboratory exercises ought to involve measurements and computations which would give quantitative results. Moreover, the apparatus for physics and chemistry were at hand and were therefore utilized in physical geography. There are arguments in favor of quantitative experiments, particularly if mental discipline is the chief purpose of the laboratory work. It has been found, however, that satisfactory quantitative exercises in physical geography are not easy to find and that when found they are either difficult to perform, or do not appeal to the pupils, or are of little practical value when performed. The very fact that suitable quantitative problems could not readily be found has probably been a benefit to the science, for there are other types of laboratory work which are of more all-around value.

The nature of laboratory work in physics and chemistry calls for a distinct room properly fitted up and equipped. The recitation room is a separate room, as it ought to be. For the most part, definite hours are set aside for class recitations and others for laboratory work.

It is not certain that either a separate room for a laboratory or fixed laboratory hours are really necessary in physical geography. Often the orderly progress of the class calls for more laboratory work this month than it did last. If the room used by the physical geography classes can be fitted up as a combined recitation room and laboratory, then the two kinds of work may go along together in a natural way. No doubt there is a gain in having at least one double period a week. Three single periods and one double period a week make a good combination. It is not necessary that the laboratory work be always done during the double period, but the provision for the longer period enables the teacher to begin and complete exercises which could not be completed in a single period. Recitations, discussions, work with maps and other materials may very properly take place in the same period. Some of our foremost geography teachers prefer this method to the other method of making a formal separation of laboratory work from the other work of the class.

It is not proposed to give an outline of a laboratory course here. The young teacher who has not had special training in physical geography, and who is expected to do laboratory work, will find it best to use a laboratory manual, carefully selecting the exercises.

The laboratory work ought to go hand in hand with the text book work, each supplementing the other. Every exercise ought to have definite purpose. If the superintendent should visit the geography class and ask the

teacher. "Just what do you expect to accomplish by this exercise?" she should know, and should be able to tell him promptly. When the pupils have finished the exercise, they, too, ought to have at least a fairly definite idea of what they have been doing and why they have been doing it. It would not be a bad plan if the teacher made herself write out in a sentence, the purpose of each particular laboratory exercise, as she sees it, then keep this purpose in mind, and when the exercise is completed, ask the pupils what they understand they have been doing it for. The plain fact is that no small amount of time may be wasted in so-called laboratory work; there is a large amount of aimless effort and dawdling, partly, at least, because neither teacher nor class know exactly what they are after, and when they are through, don't know quite why they did it. Such work can never bring pleasure or satisfaction to anybody. Clean cut work, with a conscious aim, does give pleasure and satisfaction as well as benefit. All of the laboratory manuals now in use were prepared for the use of classes in *physical* geography. The present trend of opinion favors the humanizing of secondary school geography—laying less emphasis upon the purely physical side of the study and more upon regional geography and those phases which deal with human activities. If this change in the character of the high school work shall continue, then our laboratory courses must be reconstructed. At any rate, those laboratory exercises which bring out and illustrate the cause-and-effect relations between the earth and its inhabitants seem to have the greater interest and the greater culture value.

The following articles, bearing upon laboratory work, have appeared in the Journal of Geography, since January 1, 1902:

The Use of Maps in the Teaching of Geography, by A. W. Andrews, Mar., 1902, Vol. 1, p. 97.

Practical Exercises in Physical Geography, by W. M. Davis, Dec., 1903, Vol. 2, p. 516.

Practical Work in School Geography, by R. H. Whitbeck, Oct., 1904, Vol. 3, p. 374.

Laboratory Work in Physical Geography in Secondary Schools, by Clara B. Kirchwey, Mar., 1905, Vol. 4, p. 122.

Some Contributions to Laboratory Physiography, by W. F. Langworthy, Mar., 1905, Vol. 4, p. 131.

Practical Exercises on the Topographic Map, by Martha K. Genthe, May-June, 1905, Vol. 4, p. 221.

Map Reading, by Robert M. Brown, Sept., 1905, Vol. 4, p. 273.

Laboratory Work With the Sun, by J. Paul Goode, Mar., 1906, Vol. 5, p. 97.

The Storing of Maps, by Frank Carney, Nov., 1908, Vol. 7, p. 52.

Representation of Land Forms in the Physiography Laboratory, by R. S. Tarr & O. D. von Engeln, Dec., 1908, Vol. 7, p. 73.

The Interpretation and Use of Maps, by Helen B. Montgomery, Apr., 1909,

New Laboratory Methods of Instruction in Geography, by W. H. Hobbs, Jan., 1909, Vol. 7, p. 97.

The Laboratories for Physical Geography in Two California High Schools, by C. T. Wright and J. C. Fremont, Sept., 1909, Vol. 8, p. 10.

Laboratory Work in High School Geography, by E. F. Bean, May 1911, Vol. 9, p. 236.

Laboratory Work in Physiography in the Chicago High Schools, by Harry M. Clem, May, 1912, Vol. 10, p. 290.

R. H. WHITBECK.

DUAL DEVELOPMENT OF THE RUSSIAN REALM

By FREDERICK HOMBURG,
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The separation of Europe from Asia is Mediterranean tradition. It originated with the Greeks because of the contrast between the east and west shores of the Aegean Sea; and we have accepted this teaching as a time-honored heritage. From a purely physical viewpoint, we are forced to look upon Europe as a huge peninsular branch of Asia. If we continue to regard Europe as a continent, it must be for other than physical reasons, and such are easily found; in its outline, its contour, its moderate climate, and, above all, in the history and progress of its people, Europe is so different from Asia that, if not physically, it certainly is culturally, a distinct part of the earth. Since, however, central, peninsular and insular Europe would constitute but a small grand division, Russia is thrown in for good measure.

Does Russia really belong to Europe? If so, what cuts it off from Asia? The decree of the omnipresent Tsar has added the Caucasus mountains to Europe. The official boundary runs from about the mouth of the Kura river through the Caspian Sea to a point east of the Ural delta; then comes an irregular northerly line, which turns east along inconsiderable hills, passing beyond the Ural mountains, and again turning north it follows the crest of the Urals in their northern half, and terminates in the Kara Sea. European geographers claim as a physical boundary the Caspian Sea, the Emba river, thence across the watershed to the Tobol river, thence to the Irtysh and Ob, ending in the Gulf of Ob. Let the readers consult their maps, trace these boundaries and see that neither the artificial, political nor the physical boundary separates the land. The Caspian and Aral steppes are continuous with those of Russia; the same tundras are found on both sides of either line in the north; and the ancient, much denuded Ural

mountains are so little of a barrier that on their gradual western slope, a traveler with untrained eye can scarcely tell where is the beginning of the mountains or the end of the plain. The lowland marking the physical boundary was a real dividing line in the days when the waves of the Tertiary sea beat against the steep eastern slope of the Urals.

At present the transition from Asia to Europe is so gradual that we may fairly say Russia belongs to both; it is the middle ground of the two continents. Across this bridge, horde upon horde of Asiatic barbarians moved toward the west. The steppes of the south by contour and position were especially favorable to these migrations, which relieved population pressure in barren Central Asia. The Scythians who fought the ancient Greeks were followed by the Sarmatians; these were dispossessed by the Ostrogoths, who in turn were overcome by the fierce Huns; then followed in succession the Bulgarians, Avars, Magyars and other tribes. The thirteenth century witnessed the terrible inroad of the Mongols; then came the Tartars who settled and established states; later the Kirghese appeared; and as recently as the seventeenth century, the Kalmucks crossed the lower Volga. During the earlier part of this storm and stress period in the steppes of the south, a slow but sure development was going on in the wooded region of the north. A branch of the Slavic Russians, pushing farther north and east, encroached on the territory of the Finns and amal gamated with them, thus forming the division of the Great Russians, the dominating people of the empire. In those wide, level lands with shifting population, no race could remain pure and unmixed; and the Great Russians represent roughly a cross between Slavonian and Finnish stock with some Tartar blood added; many Russian physiognomies, with their broad faces, high cheek bones and flat noses indicate the Turanian type. Conservative in the extreme and with oriental submissiveness, for two and a half centuries they meekly bore the Tartar yoke; but when, toward the close of the fifteenth century, the Grand Duke of Moscow asserted his independence and assumed the title of Tsar, then followed the astonishing growth of Muscovite power.

The very qualities that made the Great Russians a good subject people now enabled them to take on the role of conquerors. Patient and long suffering, enduring and prolific, this people was a powerful instrument in the hands of able leaders, and became under their guidance the support of Russia's absolute state craft and of its military might. In the great plains with no natural barriers nor defence-aiding obstacles, the independent states soon yielded to the attack of these obedient and enduring warriors when once they were furnished with centralized direction. Toward the west superior people blocked the way, so that the much-quoted line

"Westward the course of empire takes its way"

did not apply to Russia. Indeed, its expansion was in the other direction.

As if in retaliation for the invasion of Europe by Asiatic barbarians, the Russians shortly before the day of the Spanish Armada, crossed the Urals and entered upon the conquest of Siberia.

By the middle of the seventeenth century, the Russians held the shore of the Pacific, i. e. at a time when Russia in Europe had reached neither the Baltic nor the Black seas. In those days, the empire could communicate with the Atlantic only by way of the White Sea in the frozen north, whose chief port, Archangel, was separated from productive regions by wide barrens, and was ice-locked a great part of each year. Look at the map of Russia at the beginning of the reign of Peter the Great, and note that this realm, before it ever played a part in world politics, was at the same time a European and an Asiatic power; hence Siberia cannot be regarded as a colonial territory but as an integral part of the "Old Dominion."

Since then with faithlessness in diplomacy and ruthlessness in war, the empire, with but few and small relapses, has been steadily on the increase, until now it controls the greatest continuous territory on earth. Not only that, but Russia is ahead of all other great states in expansion possibilities; it has along a great part of its extensive borders neighbors that are weak; and it is taking them into its fold as rapidly as it can, or as fast as it dares. Russian emissaries swarm through the adjoining states, they threaten Turkey, Persia and Afghanistan, and they are drawing alarmingly near the British possessions in Asia. They had hoped by their bold advance in Manchuria to get within easy striking distance of Peking. In Manchuria, however, their advance was abruptly stopped; the Russians had made the mistake of underrating the power and insight of the Japanese who had understood the Russian game and prepared for it. Hitherto the Russians have had to guard only their western frontier; the war with Japan proved that on the eastern border, too, there was a power with which in future they would have to reckon. Russia, like ancient Persia, showed the disadvantage of a state with very extensive territory; it may have great resources but usually they are scattered; the whole is unwieldy and the frontier to be guarded is long. Japan, like ancient Greece, had the advantages of a more concentrated state, and those of a maritime power fighting a great continental realm. In Spenser's Fairie Queene, Prince Arthur overcomes the giant Orgoglio and this is the result:

"But soone as breath out of his breast did pas,
That huge great body, which the gyant bore,
Was vanisht quite, and of that monstrous mas
Was nothing left, but like an emptie bladder was."

Russia is ever a real menace to its weaker neighbors. In spite of the saying that the heavens are high and the Tsar far off, a centralized government, with leaders such as those of the Russian school, and with the Great Russian masses to support them, is bound to be formidable.

The trust movement of Russia is better understood when it is remem-

bered that the Great Russian masses were long a unit in canine devotion to Tsar and Church. These masses are on the increase; Russia gains nothing by immigration, it does lose by emigration, and the death-rate is appalling; hence the rapid increase in population is entirely due to a prodigious birth-rate. In the Great Russians is reflected the dualism of their origin, their history and their land; their country is the connecting link between two continents, their development as well as their ancestry has been in part both European and Asiatic. This dualism finds expression in institutions and in architecture, in society and in character. The Russian yoke rests heavily on the inhabitants of Poland, Little Russia, the Baltic Provinces and Finland and the more cosmopolitan dwellers in the large cities; but the Great Russians are by descent and environment best fitted for the task of bringing a type of western civilization to the people of a large part of Asia.

THE GEOGRAPHICAL FACTORS CONTROLLING THE SITES OF TOWNS

By J. W. PAGE, in *The Geographical Teacher*, London

MIGHTY cities do not rise anywhere. Their position is controlled by one or more geographical factors, and the town will flourish or decay according to the permanence of these conditions. In early times settlers were dependent upon local supplies of water, hence they made their homes near wells or springs. This is well seen in the Wealden district, and in all clay areas. Thus most of the Essex towns are situated on the valley gravels, sands, glacial gravel or chalk. Settlements on the London clay were rare, and few took place until artesian wells were made or water was carried a distance. This is well seen in the Lea valley. In Hertfordshire and Middlesex there are quite a number of villages on the valley gravel, whilst on the east, where it is clayey, the villages are few and far between. In fact, Waltham Abbey is the only one of any importance.

Rivers. It is evident that in a thickly forested country the easiest means of communication is up and down the streams that flow through forests. On account of this, in early times, when our islands were covered with forests, the trade passed that way, and as a result groups of people settled on the river banks. These settlements increased and gave rise to towns, and even today most of our large towns are situated on the banks of rivers.

These early settlements were not made anywhere; care was taken to find the most suitable spot. A rock which is river girt was very valuable, as it gave a view of the surrounding country, and was easy of

defence. A castle or church was, in the first place, built on this rock, and the town sprung up under the protection of the baron or the church, *e. g.* Stirling, Chester, and Durham. Sometimes a site was easy of defence because it was surrounded by marshes, the paths across which were only known to the inhabitants. The early inhabitants of Venice made their settlements on the low islands at the delta of the Po to avoid the hordes that had invaded the plain of Lombardy. Here they eked out a living first by obtaining salt from the shallow lagoons; later they became fishermen, and like most fishermen, ultimately the Venetians became merchants. Their trade flourished because there were easy routes across the Alps into central Europe. Again, British London was built on the slightly rising ground overlooking the Thames, being protected on most sides by marshes.

Where two rivers meet is an excellent position for a town, as such a spot commands three routes, and this means more trade. St. Louis in the U. S. A. is situated near the confluence of the mighty Missouri and Mississippi, and near to it the Illinois enters, which rises so near to Lake Michigan that it was quite easy to portage a canoe from the lake to the Illinois. As a matter of fact, it was by this route that the French reached the valley of the Mississippi. They were kept out of Lake Ontario and Erie by the Iroquois Indians, who were friendly with the British, but they canoed up the Ottawa River, portaged across to the French River, and down this into Lake Huron. From this lake they entered Lake Michigan, and guided by Algonquin Indians, found the Illinois, canoed down this stream to the Mississippi and so to the Gulf of Mexico. The construction of a canal has now given St.Louis water communication with Chicago and the great lakes.

The existence of a ford often attracted a settlement. The great number of towns which contain this syllable in their name show the significance of this. An ancient trackway may have crossed a river near such a place, as was the case at Westminster and Vienna.

The old Amber Way, along which amber found its way from the Baltic to the Adriatic, and so into the Mediterranean, passed by means of the Moravian Gate, between the mountains of Bohemia and the Carpathians, crossed the Danube near to where Vienna now stands, and passed over the Alps by means of the Semmering Pass. In olden times a settlement was made where the Amber Way crossed the Danube; and today, as this is the crossing place of railway routes—the Orient, which clings to the Danube valley on its way to Constantinople and Salonica, and the route from Trieste to Vienna and Germany—Vienna continues to flourish.

The presence of an obstacle in a river that makes it necessary for goods to be transhipped, brings people to that spot, and a town arises.

It may be a bridge, as in the case of London. Vessels can come up the river as far as London Bridge, but here goods must be transhipped. Just stand on London Bridge, and you will see goods being taken ashore to be distributed to the various parts of the country along the excellent system of roads and railways that radiate from the metropolis, while some goods are put into barges to be taken above the bridge. There is no doubt that the bridge across the Thames has played a great part in the creation of our mighty metropolis.

So also will the presence of a fall or rapid necessitate a break in the transport of goods. In the east of the United States the Appalachian Mountains rise above a plateau which falls rather abruptly to a coastal plain. At this point are a series of falls which roughly follow the 100 foot contour. Where this contour line is cut by a river there is a town *e. g.* Philadelphia, Baltimore, Trenton, &c. A town sometimes springs up at both ends of the falls. The railway that was built to avoid the rapids of Stanley Pool in the Congo helped to create Boma at one end and Leopoldville at the other.

Some rivers flow through gaps in or between ranges of hills, and as these valleys form easy means of communication, a town springs up guarding the gap, and flourishes on the commerce that passes that way. In the Wealden area, the chalk ridges of the north and south Downs have been worn through in many places by rivers, and at these places stand towns, *e. g.* Guilford, Dorking, Lewes, &c. The chalk barrier of the North Downs becomes wider towards the east, and the gap of the Medway is, in consequence, guarded by Maidstone at one end and Rochester and Chatham at the other end. In the Scottish Lowlands, where the Tay flows between the Ochil Hills and Sidlaw Hills, stands Perth, guarding the route to the north, where the Forth flows between the Ochil Hills and the Campsie Fells stands Stirling. The existence of these gaps made the construction of railways to the north comparatively easy, and this has increased the importance of these sites. Under somewhat similar circumstances towns spring up on sites that command mountain passes on account of the trade that passes through them, or to guard them, *e. g.* Turin, Milan, Peshawar, Tiflis, &c.

Plains. All towns do not stand on rivers. Some flourish in the plains. Here a commanding view will be an advantage. In the lowlands of Scotland there are a number of isolated crags, which are the remnants of the hard necks of long extinct volcanoes. These were excellent positions, and around the castles which were built on these crags have sprung up such towns as Dunbarton and Edinburgh. Occasionally where no hill existed an artificial mound was raised, as was done in ancient Babylonia, so as to be above the reach of the floods, and as was done at Downpatrick in Ireland.

Superstition and religion have made some sites of value, and have helped the town to grow, *e. g.* Llandudno, Bethel, and Mecca.

Towns spring up in desert regions on the oases. They flourish if the oasis is large, and still more so if the oasis is the meeting place of caravan routes. Damascus, Timbuktu, Bokhara owe their prosperity to this fact, and so in the days of old did Babylon, Nineveh, and the settlements in the Lob Nor basin. But these latter towns show us how largely they were dependent on trade, and remind us of what happens to towns when the trade on which they depend goes by another route.

Just in the same way as towns spring up at the meeting of caravan routes, so do towns arise at great railway centers, *e. g.* Crewe, Winnipeg, and Chicago. In the case of the latter two, they are situated near to great lakes that compel the lines to go through the towns.

Modern time has produced the factory system which relies on coal and iron, and as the cheaper place to buy these articles is on the producing ground, factories are built there, and large towns spring up and flourish. Today the densest population outside Asia is on the coalfields, but in days to come, when electricity is more used and the labourer lives in more healthy surroundings, the existence of water power will be a great asset, as it is at Buffalo today. Not only does coal and iron produce towns, but other minerals, especially gold, cause towns to spring up, *e. g.* Johannesburg, Kalgoorlie, and Kimberley, the latter from diamonds.

Coast. The existence of these large manufacturing populations, and the condition under which they work, caused many of the people to go for a holiday to the sea for the fresh air. Hence the existence of a good beach near such places creates a seaside resort, *e. g.*, Blackpool, Scarborough. Health resorts also spring up inland where the scenery is grand and inspiring, the air bracing, or where there are mineral springs.

But by far the most important of coastal towns are the ports. The ancient Phœnicians had no compass to guide them when sailing on the Mediterranean. The stars and the coast were their only guide. Thus, in choosing sites for new settlements, they always sought a rocky promontory, by the help of which they could guide their vessel safe into the harbour, *e. g.* Tyre, Carthage, &c. The first trading settlements of a nation in a foreign country are made, when possible, on islands that are near enough to the shore for trading purposes, but far enough away so as not to be invaded by the natives without warning. The Dutch settlement of New Amsterdam (now New York) was founded on Manhattan Island, at the mouth of the Hudson River, and the French made their settlement of Montreal on an island in the middle of the St. Lawrence. Singapore, Bombay, Mombasa, and Zanzibar, which are entrepôts, are all situated on inshore islands.

In the days of sailing ships, ports were situated as far inland as the depth of water, bridges, or water-falls would allow, as it was necessary for the frail ship to be out of the reach of storms. Today, however, the vessels are larger and stronger; and in consequence they can withstand storms. Their enormous size prevents them from going far up the river, thus many of the old ports have outports, *e. g.,* Tilbury for London, Bremerhaven for Bremen, and Cuxhaven for Hamburg.

A fine natural harbour is not the only condition necessary for the rise of a port today. Many of the openings in West Ireland are excellent harbours, yet there are no large ports on them. Behind the harbour there must be a rich agricultural region or a densely populated manufacturing area, so that the vessel can be sure of a return cargo. Besides this, proximity to a coal field is a great asset.

Politics. Even politics has taken its part in the creation of cities. Fifty years ago Ottawa consisted of a few lumber huts; now it is a fair-sized town with a magnificent pile of government buildings. This site was chosen to avoid jealousy between the French-Canadian of Quebec and the English-Canadian of Ontario. The choice of it as capital gave rise to a settlement of people there, and so a town arose. Almost the same conditions produced Washington, and the same conditions will give rise to a city in Australia at Canbery, the site which has been chosen for the Federal capital.

Many points have entered into the growth of cities, and it is a somewhat difficult but interesting problem to discover those that have helped to produce any large town. No doubt the origin of many towns could be traced back to the days when at that spot peoples of different tribes used to come together to trade. There one tribe would place its goods and leave them, after having given a signal to the others, who would come and take those goods, leaving others in return, much in the same way as the Pygmy do their "silent trade" with the negroes today. Later, booths would be built and used at market time, but ultimately some of the people would see to the trading and settle in the neighbourhood, and a town would grow up.

THE DEVELOPMENT OF MANUFACTURING INDUSTRIES IN JAPAN

By GEN MURASE,
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Until some fifty years ago Japan, having adopted the national isolation policy, was cut off from diplomatic relations with the civilized countries in Europe and America, and this seriously impeded the progress of

her civilization. Though the natives had attained a high degree of excellence in many of the mechanical arts and in the production of numerous small articles of daily use and ornament, and displayed a wonderful ingenuity and delicacy of workmanship, their methods were backward and quite primitive, being simply carried out by hand-work on a small scale. When Commodore Perry visited the country with his fleet, her rich coal mines, now yielding more than fifteen million tons annually, lay quite untouched, because of the ignorance of her people as to its use. Even glass was considered a precious article. The story is told of one of the richest Diamyos (feudal lords) who put glass in the windows of his villa, and the government promptly reprimanded him for his luxurious use of that glass. Matches, now one of her staple exports, were not known at all. The people struck flint in order to make a fire. It is true that they knew how to cast iron, make steel, extract gold and silver from the ores, weave cloth, etc., but by processes quite unlike the modern ones. It is one of the wonders that such a country, in the short period since the opening to foreign commerce in 1858, has been able to master advanced methods in all departments.

Though Japan cannot as yet be called a manufacturing country, her progress in the manufacturing industries is quite marvellous as is seen from the following tables:

Value of Chief Products.

	1910		1890	
Textiles	125	million dollars	16½	million dollars
Raw Silk	75	" "	20	" "
Cotton Yarn	65	" "	6	" "
Japanese Paper	9	" "	2½	" "
European Paper	7	" "	?	" "
Matches	7	" "	1	" "
Crockery	6	" "	1¼	" "

	1910	1890
No. of Factories	33,000	(7284 in 1900.)

The prospects of manufacturing in Japan are very promising on the following accounts:

1. The abundance of materials. The country, extending from 22 to 50 degrees N. lat., abounds in various products of different climates; is very rich in minerals, and is one of the world's three greatest fishing nations. The one lack is iron ores. The iron works in Wakamatsu under the government's direct control now make tolerably large quantities of iron and steel and can meet the home demand to some extent, though running at a loss, the supply of ores comes exclusively from China.

2. The avialable water power. The entire islands being mountainous.

the water-falls and rapids which may be utilized for power are everywhere throughout the Empire.

3. The cheap labor. Though there is an opinion that the wages of Japanese workmen is not cheap considering their low efficiency, it must be noted that the average wages according to the latest returns does not reach even to 20 cents a day. This will buy some three quarts of rice, the staple foodstuff. The stout workman must eat some two quarts of rice in a day.

4. Government stimulation. The government, in encouraging the progress of industries, spares no efforts. Buildings for the promotion of industries, or institutions for the industrial training of youths are met with in every city and town.

5. The geographical position. China is a very promising market in future for the Japanese goods.

NOTES

OUR EXPORT TRADE. The export trade of the United States for the fiscal year 1912 viewed from the standpoint of destination was characterized chiefly by a large growth in shipments to various Asiatic and South American countries—the gains in the former case bordering on the phenomenal. Shipments to Asia were larger by 32½ million dollars, a figure, it is true, exceeded by the increase to both North America and Europe, but the 32½ million dollar gain in the case of Asia meant an increase of 38 per cent in a single year. Exports to India were larger by 55 per cent than in the previous year; to Japan, 45 per cent; to the port of Hong Kong for redistribution, 32 per cent; and to China, exclusive of leased territory, 26 per cent. Declines occurred only in the exports to Korea, Dutch East Indies and Asiatic Turkey, and they were nominal. The exports to South America increased 23 million dollars, or 21 per cent, over the preceding year, thus maintaining that substantial annual record of increase which has characterized this trade for the last ten years. The largest proportionate gain was in the exports to Chile, a gain of 30 per cent, as against 27 per cent in the case of Brazil and 20 per cent each in the case of Argentine and Venezuela. In point of actual value, however, the 3½-million gain of Chile is small compared with an increase of 9 millions to Argentine and 7½ millions to Brazil. The most notable decline occurred in exports to Ecuador, about $150,000, a falling off due probably to the quarantine prevailing at Guayaquil for some time.

While the most striking advances were made in exports to the Asiatic and South American continents the exports from the United States to each of the other four continents were larger in the fiscal year 1912 than in 1911.

To the North American countries the increase was 60 million dollars, or 13¼ per cent; to European countries, 34 million dollars, or 2½ per cent; to Oceania, 6 million, or 9 per cent; while in the case of Africa there was but a meagre advance of ½ million in a total of 24 millions.

Taking the North American countries, the most pronounced gains were made in exports to Canada, 22 million dollars. The European countries collectively—buyers principally of foodstuffs and raw materials—are still the best markets for American exports. In the twelve months ending with June last over three-fifths of the total exports of the United States went to Europe.

It is not at all surprising, in view of the phenomenal gain in the exports to Asiatic countries already referred to, that there was a greater advance in shipments from the Pacific Coast than from any other district. Measured by value the increase was 33½ million dollars—only one-third of the increase in shipments from the Atlantic Coast ports, but the gain in the Pacific Coast ports meant an increase of 35 per cent as against an eight per cent advance for the Atlantic Coast. Nearly three-fifths of the exports from the United States to foreign countries go through the Atlantic Coast ports, and almost two-fifths through the port of New York; the shipments through a number of other Atlantic Coast ports, however, are growing rapidly. Through the Northern Border ports the increase in shipments was 52½ million dollars, or 20 per cent. Exports through the Gulf ports on the other hand show a decline of 24 million dollars, or five per cent—even so they were the largest with two exceptions in ten years—and the exports via the Mexican Border ports were less by 3⅓ million dollars, or 10 per cent. In the former group principally and in the latter entirely, the smaller shipments were due to the recent political changes in Mexico with resulting disturbances to business.

The value of the exports through the principal groups of ports in the fiscal years 1912 and 1911 is shown in the appended table:

Customs District	Year, 1912	Year, 1911
Atlantic Coast	$1,262,679,331	$1,018,143,541
Gulf Coast	463,973,859	399,100,499
Mexican Border	27,193,816	29,106,100
Pacific Coast	127,542,331	73,188,636
Northern Border	322,370,708	225,398,112
Interior	562,364	37,832

[From September *Commercial America.*]

THE GREAT MISSISSIPPI RIVER DAM AT KEOKUK.

One of the greatest single factors in the development of commercial America for some time to come is the hydro-electric plant on the Mississippi

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River at Keokuk, Iowa. The construction work is now about two-thirds done and the turbines will begin to turn early in the year 1913.

The basis of the whole project is the dam which is being built across the Mississippi River from the Illinois bluffs on the east westward to the power house on the Iowa side. This dam is being built in steel forms. It consists of 119 arched spans, in each of which there is a spillway over which the water will flow. Each spillway is topped with a steel gate, such gates providing for maintaining a constant level of water above the dam. This immense concrete dam structure is nearly a mile long, is 53 feet high, 42 feet wide at the base and 29 feet wide at the top, which is a wide causeway. The dam, in addition to furnishing the power for the immense turbines, will create deep water for navigation sixty miles up the river. And to provide for deep water navigation both above and below the dam, an immense lock is being constructed. To give an idea of this lock it is interesting to know that it is the same width as the locks at Panama and that there is a forty-foot lift, which exceeds the lift of any one lock on the Isthmus. When completed, this lock will replace a canal with three locks by means of which, ever since 1877, boats have passed the Des Moines Rapids in the Mississippi River. An auxiliary feature in connection with this lock will be a large dry dock.

This water power will be cheap power in the fullest sense of the world—it will be cheaper than the power derived from Niagara Falls. The cheapest coal in the world, and the cheapest steam power in this country, is in St. Louis, adjacent to the Illinois coal fields. Yet St. Louis has contracted for ninety-nine years for 60,000 horsepower to be transmitted there from the Keokuk dam.—[From September *Commercial America.*]

INDUSTRIAL PHILADELPHIA

An Englishman, Arthur Shadwell, in a recent work on "Industrial Efficiency: A Comparative Study of Industrial Life in England, Germany and America," after having visited all the manufacturing centers of those countries said, "I have just called Philadelphia the greatest manufacturing city in the world and I believe it to be so. True, it does not compare with such monstrous aggregations as London and New York, but they are not manufacturing cities in the same sense. They are primarily something else, and the manufactures are mainly accidental or secondary. They are there because the population and traffic are there. But Philadelphia is primarily a manufacturing place and the industries are carried on in very large establishments on a great scale."

The Bureau of the Census of the United States divides the various industries into two hundred and sixty-four classes, of which two hundred and eleven are made use of in making the report of Philadelphia. This great

variety of industries is one of the causes of the industrial greatness of Philadelphia and distinguishes it from most of the other cities. In the production of manufactured product from raw materials, Philadelphia is far ahead of any other city.

The names of many Philadelphia firms are almost synonymous with the products they manufacture. The mention of locomotives suggests the name of Baldwin; of ships, that of Cramp; of cars, that of Brill; of saws, that of Disston, and of hats, that of Stetson.

The manufacture of textiles is the most important industry in Philadelphia. The total value of these industries is over one-fifth that of all industries; nearly one-third of all the wage earners in Philadelphia are engaged in the manufacture of textiles.

The hosiery industry of the United States had its beginning in Germantown, a part of Philadelphia, soon after Penn's arrival in 1683. The Mennonites and other Germans from the Palatine, who settled in or near Germantown, brought with them their crude frames and set them up in their homes.

The value of the woolen, worsted and felt goods and woolen hats made in Philadelphia exceeds that of all other classes of goods, according to the census.

The first carpets made in America were by William Calverly at Philadelphia in 1775. He was followed by William P. Sprague, who made Turkish and Axminster carpets in Philadelphia in 1791. He furnished a handmade tufted carpet adorned with patriotic emblems for the floor of the United States Senate. It is not generally known that Philadelphia, though settled by Penn sixty years after the New England States, early held a prominent position in the manufacture of cotton goods. The first spinning jenny seen in this country was exhibited at Philadelphia in 1775. The first joint stock company in the United States, and probably the first company to make cotton goods was organized in Philadelphia in 1775, and known as "The United States Company of Philadelphia for Promoting American Manufactures."

The first silk manufacturing plant in the United States was that of William H. Horstmann, who in 1816 started the manufacture of silk trimmings at Third and Arch Streets, Philadelphia. He also, in 1824, introduced the first Jacquard machine into the United States.—[From September *Commercial America.*]

PHILIPPINE PROGRESS

Eleven years have elapsed since the capture of Aguinaldo put an end to the insurrection of the Filipinos that followed hard upon the Spanish War. On the 4th of July, 1901, William H. Taft became the first American Civil

Governor of the Philippines, a title subsequently changed to that of Governor-General. The progress and development that have been effected in the country in these eleven years is little short of marvelous. Since the opening of the twentieth century the islands have made comparatively more material and moral advance than any other country in the world. Astonishing internal improvements have been brought about and the betterment that has taken place in the condition of the people seems well nigh incredible when one considers the state of affairs that existed a little more than a decade ago.

The country is now entirely self-supporting. This year the customs duties and internal revenues will amount to about $17,000,000, which will not only pay for the administration of government, but will leave a surplus of about $1,000,000 for the year. The only expenses at present borne by the United States in connection with the Islands are for the maintenance of troops—which would have to be maintained somewhere in any event—and for coast fortifications.—[From August *Commercial America.*]

PUGET SOUND CLIMATE

The heaviest precipitation occurs during November, December, January, and February, and for many of the stations the maximum rainfall occurs in November. Taking the average for all the stations, about 85 or 90 per cent of the total precipitation occurs in the eight months, October to May, inclusive, and about 75 per cent in six months, November to April, inclusive.

The reasons for the concentration of the precipitation in the winter months are: (1) The cyclonic or storm areas passing over the section from the west are more numerous and better developed in the winter than in the summer, thus causing more frequent and heavier precipitation in the winter months; (2) during the winter the ocean is warmer than the land, and the air laden with moisture, moving from the warmer ocean, is cooled quickly as it moves inland over the cooler land mass, thus causing rapid condensation and heavy precipitation. Condensation is increased as the air is forced to ascend rapidly in passing over the mountains. During the summer, however, the ocean is cooler than the land, and the air moving from the cooler ocean to the warmer land is not cooled sufficiently to cause the heavy precipitation that occurs in the winter. This effect is emphasized by the fact that the winter winds along the coast are prevailingly from the southwest and become cooler as they blow northward, thus causing more rapid condensation, while in the summer they are prevailingly from the northwest, becoming warmer as they blow southward and inland.

The November maximum of precipitation is no doubt due to the fact that during November there are fewer prolonged cold spells, which interfere with the landward movement of moisture-laden air, than during

December and January and therefore a greater number of days with heavy precipitation.

The daily variation in precipitation has not been worked out for the whole section, but observations at Seattle show that between 70 and 75 per cent of the total precipitation occurs during the night hours or between 5 p. m. and 5 a. m. The average daily range of temperature at Seattle is about 9° during the winter months and 18° during the summer months. The greatest ranges are from 25° to 30° during the summer months, while the least daily range is about 3° and occurs during the rainy days of winter. While this remarkable uniformity of temperature may be accounted for by the fact that the winds come from the Pacific Ocean, which is warmer in winter and cooler in summer than the adjacent land areas and thus causes higher winter temperatures and lower summer temperatures than would otherwise occur, we must take into account also the effect of low pressure or storm areas. The usual winter track of these storm-producing areas is so far to the northward that southerly and southwesterly winds prevail and these being warmer cause higher temperatures. Then, too, the condensation of the moisture carried by these moisture-laden winds causes an appreciable rise in temperature and thus increases the warming effect of the southerly oceanic winds. Many have ascribed this equable climate to the Japan current, but, as has been shown, the prevailing westerly winds, the cyclonic storms, and the condensation of the moisture are the chief factors in causing these conditions. The only influence that the Japan current exerts over the climate here is in the general raising of the temperature of the waters of the Northern Pacific Ocean a few degrees higher than it would be if there was no current. Even this effect would not be felt on our coast if it were not for the prevailing westerly winds. Changes of climate have also been explained by changes of position of the Japan current. In the first place, no permanent change of climate is shown by the records, and any slight differences that may be observed between two winter seasons or two summer seasons or different months can be easily accounted for by irregular variations in the path of the cyclonic storms which pass over the area. If the storms pass south of the section, the winds will be from the north and cooler weather will be the result. If the storms pass north of the section, the winds will be from the south and warmer weather will be the result.—[E. J. Saunders, in *Reconnaissance Soil Survey, Puget Sound Basin,* U. S. Dept. Agr. 1910.]

GEYSERS

In his bulletin on *Geysers**, Mr. Walter Harvey Weed, discusses in some detail the phenomena, causes, and distribution of geysers. The following facts are from this bulletin. Mr. Weed holds that the study of geysers shows:

*Published by the U. S. Dept. of the Interior; sold for 10 cents.

First. That geysers occur only in volcanic regions and in acid volcanic rocks. In Iceland and New Zealand the volcanic fires are still active.

Second. Geysers occur only along lines of drainage, on shores of lakes or other situations where meteoric waters would naturally seek the surface.

Third. Geyser waters are meteoric waters which have not penetrated to great depths, but have been heated by ascending vapors.

Fourth. The supply of heat is derived from great masses of lava slowly cooling from a state of former incandescence heating waters, which, descending to the hot rocks, ascend as highly heated vapors.

Fifth. The intermittent spouting of geysers is due to the gradual heating of water accumulated in fissures or tubes in the rocks, the only mechanism necessary being a tube, which may or may not have local expansions or chambers.

Sixth. Geysers may originate in several ways, though most commonly produced by the opening of new waterways along fissure planes of the rocks, by a gradual eating out of a tube by ascending hot vapors.

Seventh. The thermal activity of geyser regions is not rapidly dying out. The decrease of heat is very slow, and, though changes take place from year to year, the establishment of new geysers and new hot springs offsets the decay or drying up of old vents.

It is noteworthy that geysers are rare, are confined to regions of geologically recent volcanic activity, and are active in only three parts of the world,—Iceland, New Zealand and the Yellowstone Park; the last named is the most important region.

THE GULF STREAM

The equatorial current north of the equator has an almost uninterrupted progress until it reaches the Windward Islands, but a portion of it also impinges against the Guyana Coast and thus augments the volume of that current.

At the Windward Islands both are united, and a portion of the flow enters the Caribbean through the various passages, crosses it to the Yucatan and Honduras coasts, and thence into the Gulf of Mexico, from which it issues through the Straits of Florida as the Gulf Stream. Passing onward toward Europe it is augmented in volume by a part of the north equatorial current that sweeps along outside the West Indian Islands and the Bahamas, and while this current is slow in movement in comparison with the Gulf Stream itself, it doubtless carries a much greater number of heat units to help warm up northern Europe. * * * *

The Strait of Florida at its narrowest point is about 40 miles wide and observations here numbered between three and four thousand, surface

and subsurface. A calculation of the average volume of water passing in one hour gives the enormous sum of 90 billion tons. If this one single hour's flow of water could be evaporated, the remaining salts would require many times more than all the ships in the world to carry it. * * * *

As the Gulf Stream leaves the Strait of Florida its direction is about north, but it gradually changes and follows a course approximately parallel to the curve of 100 fathoms depth until it arrives off Cape Hatteras, and maintains about the same width as when it issued from the Strait of Florida. From this point it starts on its course to Europe. It has lost something in velocity as well as in temperature, and, as it journeys to the eastward it gradually diminishes in both, until at last it becomes a gentle flow. * * *

Various theories as to what causes the Gulf Stream have been given, but it seems that while Franklin's ideas are nearest correct, they are not complete. * In the tropical regions there is a steady movement of the air from east to west known as the trade winds. South of a certain line situated near the equator they come from a more southeasterly direction, while north of the equator they come from a more northeasterly direction. The winds are not always strong, nor are they constant in direction, but they do not vary much, and, then only for brief periods. * * * *

The Gulf Stream would be little felt on the coast of Europe did it not receive a great addition to its volume of heat when en route. This is by means of a gentle flow from the northeast tradewind current that passes outside the Caribbean Islands and the Bahamas. The surface temperature of this outside current is about the same in its passage along the West Indian Islands as the Gulf Stream in the Strait of Florida, but it is less violent in its movements and there is less intermingling of its upper and lower waters, so that it arrives off Cape Hatteras with a much higher temperature than that of the more turbulent Gulf Stream.—[J. E. Pillsbury, in August *National Geographic Mag.*]

CONDENSED ITINERARY OF THE RECENT TRANSCONTINENTAL EXCURSION OF THE AMERICAN GEOGRAPHICAL SOCIETY

August 22-23, New York, Albany, Utica, Syracuse, Itacha, Rochester, ascending Mt. Beacon near Fishkill, with excursion to the Green Lakes from Syracuse; August 24-25, Lockport, Buffalo, visiting the Lackawana from Syracuse; Mt. Beacon near Fishkill, with excursion to the Green Lakes Steel Works, Niagara Falls, where over a day is spent; August 26-27,

***Winds blowing over the surface of the water induce a current in the latter due to friction. At first it is only the merest skim that moved, but gradually the motion is communicated from layer to layer, until at last, if the wind is long continued as in the trade wind region, the movement extends to lower depths, 300 or 400 feet or perhaps more.**

Cleveland, Toledo, steamer to Detroit, Chicago, where a day is spent as guests of the Geographic Society of Chicago; August 28-September 2, Madison, Wis., with a visit to the State University and automobile trip to the Driftless Area, Lake Pepin, St. Paul and Minneapolis, with local excursions as guests of the Twin Cities; Duluth, with local excursions, Fargo, Bismarck, Medora, with wagon trip in the Badlands; September 3-9, in Yellowstone National Park; September 10-17, Bozeman, Butte, Spokane, local excursions in the Grand Coulee, Yakima Valley, with visits to irrigated fruit orchards, Seattle with local excursions, Tacoma, pass Portland in the night, the Dalles, return to Portland, Medford, automobile trip to Crater Lake, a day at Crater Lake; September 18-27, Crater Lake to Klamath Falls by automobile, pass Mt. Shasta, three days in San Francisco with excursions to Mt. Tamalpais and the University of California at Berkeley, across the Sierras, two days in Salt Lake City, with excursions, Grand Junction with visit to irrigated fruit farms, Colorado Springs, a day in Denver; September 28-October 7, Parkdale, pass through the Royal Gorge, Pueblo, Raton, Santa Fe, petrified forest, two days at the Grand Canyon of the Colorado, Phoenix, with automobile trip to the Roosevelt Dam, Ash Fork, eastern Colorado and Kansas, Kansas City; October 8-16, St. Louis, leaving in the night for Memphis, boat excursion to Helena, by rail to Birmingham, Chattanooga with ascent of Lookout Mountain, Asheville, Charlottesville, visiting the University of Virginia, four days in Washington, with excursion to the Great Falls of the Potomac as guests of the National Geographic Society, visits to scientific bureaus, institutions, etc.; October 17, arrive in New York in the morning, meeting in the afternoon, reception in the evening; October 18, meeting in the afternoon, dining in the evening.—[From September *Bulletin of the Am. Geog. Soc.*]

EDITORIALS

LOCAL GEOGRAPHY

The region that any person ought to know the best is his own locality; partly because he ought to have a real understanding and appreciation of the portion of the world that means the most to him and partly because a good understanding of the home region will enable him better to know and sympathize with his neighbors in the great world that lies beyond the horizon of possible experience. The people of the world are everywhere trying to make a good living by making the best use they can of their local surroundings. The making of beet sugar in Utah or Colorado is no more a matter of chance than is the mining of iron in Minnesota. If we can appreciate *why* our locality specializes in a certain group of industries, why we wear the clothes we do, why we build houses in the form we do, why our roads are

good or bad, regular or irregular,—in other words, if we understand the reasons for the many geographic conditions about us, we are not only more in sympathy with our surroundings but we have a better basis for the home pride that is the foundation of all true patriotism.

An understanding of the conditions about us gives us a basis for comparing conditions in remote regions which are often puzzling. If we can understand the spirit that prompts our neighbors to work for better things for themselves and the community, we can more readily appreciate the aims of people at a distance. We can never get a real grasp of unfamiliar geographic conditions unless we can catch the spirit of the people whom we must know about through description and pictures.

Local geography is therefore basal to any world study. We ought to know our region better than any other. That means that we ought to study our region carefully early in school life because such a study will make later work in geography more satisfactory. We ought to study the geography of our home state later in school work because, as good citizens, we ought to know our own state best—not merely its cities, products and principal railroads, but its place in the Union and in the world. No one state is independent or wants to be. All states are a part of the great independent nation, just as the United States is one of the great community of nations. To know the part that our state plays in the world progress of this country is to understand the salient features of world geography.

Local geography therefore deserves greater emphasis in school work, and the teacher who can teach local geography as it should be taught must be well trained in geography. Every teacher has a field for work in his own region. No locality in our country is known thoroughly and every teacher can contribute to his own worth and to the progress of geography by making a comprehensive study of the geography of his home region and state. We need to emphasize local geography in its fullest sense. This means individual labor by all interested teachers. It is, however, work of the highest order, to which each one of us can afford to devote his best energies with the sure reward of co-operating in a needed work. Let us study the familiar features about us and know our own region better than we do any other. Here is a work to which each can contribute a valuable bit. Let us get together in the common purpose to know all we can about the why of our own town and state, and in so doing help in the needed progress of geography teaching in schools. RICHARD ELWOOD DODGE.

TOUR OF THE INTERNATIONAL GEOGRAPHERS

Last month we referred editorially to the party of European and American geographers who were touring the United States. That tour ended at New York, October 18th. Nine members of the editorial staff of this magazine had the opportunity of taking a part or all of that eight weeks' excursion. The party traveled about 12,000 miles; on the westward journey, crossing the United States by the northern tier of states, thence down the Pacific Coast, eastward to Denver, then southwest to the Grand Canyon

and Phoenix, returning through Kansas City, Memphis, Chattanooga, the southern Appalachians and Washington. The itinerary included the majority of the large American cities, and nearly all of the places of chief geographical interest in the United States. The perfection with which every detail of the long journey was worked out by Professor Davis, the director, and the various local committees was nothing short of marvelous. In city after city, the special train drew into the station and the geographers found a long line of automobiles drawn up to receive them and convey them about the city and often miles outside of the city. The party was carried in all more than a thousand miles in automobiles. The high record was made in Medford, Oregon, and Phoenix, Arizona, where the generous citizens carried the party to Crater Lake in one case, and to the Roosevelt Dam in the other. The round trip in each instance was about 170 miles, a large part of it over mountain roads. The abounding hospitality of the people of these and many other places was one of the finest features of a journey which was daily filled with fine things. Banquets, unique entertainments, souvenirs, crates of fruit, mounds of roses (at Phoenix) and kindness everywhere all coupled with the superb scenery, the thousand objects of interest, the companionship, and the good fellowship of the party itself, made a deep and lasting impression upon the members of the party. We desire to avoid superlatives, but it is hard to do so in referring to this excursion.

The benefits to geography and geographers in the United States will be far reaching; and forty European geographers will return to their universities with better knowledge of America and Americans. We hope that our foreign colleagues have found some elements in our national life and character to commend. We are sure they saw much which they will remember. A condensed itinerary will be found on page 105.

The JOURNAL has arranged with a considerable number of geographers to contribute articles dealing with things of interest connected with the excursion. We hope to begin this series next month. R. H. W.

The twelfth meeting of the Central Association of Science and Mathematics Teachers will be held at the Northwestern University, Evanston, on Friday and Saturday, November 29 and 30. The Great Northern Hotel, Chicago, has been selected as headquarters for out of Chicago members and friends.

The addresses at the general sessions will be given by Professor W. C. Bagley of the University of Illinois and Carroll G. Pearse, Superintendent of Public Schools, Milwaukee, Wisconsin. They will discuss some of the important phases of present-day educational problems.

The programs of the five sections contain the names of many of the prominent educators of the Middle West and provide for many reports and discussions of a practical nature which will prove of great interest and value to teachers of science and mathematics. The program of the meeting will be printed and distributed within a few days.